

## TITLE OF INVENTION

Ring-Center Pivot Loose-leaf Binder Page Lifter

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## CROSS-REFERENCE TO RELATED APPLICATIONS

Not applicable

## STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not applicable

## REFERENCE TO AN APPENDIX

Not applicable

## BACKGROUND OF THE INVENTION

### **Field of Invention**

This invention relates to page lifting devices which are used to facilitate the closing of loose-leaf binders.

### **Description of the Prior Art**

Many pages at the front and back of a binder, unless lifted, remain at the base of the rings near the spine of the binder on closing. Unless these pages are manually moved towards the top of the rings, or a functional page lifting device is used, the pages toward the front and back of the binder become jammed and damaged. Also, because of the jammed pages, the binder is prevented from closing all the way.

A variety of devices are in common use which are intended to lift or protect loose-leaf pages. Many of the available devices require some manual lifting of the pages on closing the binder,

reduce the number of pages that the binder will hold, or are of complicated construction and therefore are somewhat costly, or any combination of these.

The number of such devices in common use and the failure of many to be wholly effective without manual assistance emphasizes the need for a page lifting device which is both effective and simple, as presently described. In addition, some embodiments of the present invention will be particularly suited to use with binders having more than the typical two or three rings.

The primary problem with all presently used page lifters is that the lifters pivot at or near the ring cover resulting in the pivot axis of the page lifter being substantially offset from the axis that the pages pivot around. This requires that the pages slide on the lifters while the binder is being closed which puts the pages at risk of damage and/or causes them to jam between the binder covers and the binder rings.

### BRIEF SUMMARY OF THE INVENTION

The solution to these problems is to fix an attaching member to the binder ring-base cover and rotationally attach the page lifters to the attaching member. The height of the attaching member is such that the pivot axis of the page lifters is approximately coincident with the centers of the substantially circular binder rings. This feature, although not previously thought of, particularly distinguishes the present invention.

One object of the present invention is to provide an effective page lifter which will itself not be caught at the base of the binder ring by the pressure of the loose-leaf pages. This is accomplished either by locating the leaves of the page lifter between the binder rings, or by cutting holes or slots in the leaves of sufficient size to pass over the rings without binding on closing, or by using a loop of stiff wire to form the page lifter.

Another object of the present invention is to provide a page lifter which, on closing the binder, will lift all of the pages of a filled binder.

Another object of the present invention is to retain full capacity of the binder.

A further object of the present invention is to offer a page lifting device which, while wholly effective, is simply and inexpensively made.

Page lifters as herein described could be installed as part of the binder manufacturing process.

It is also intended that the invention as herein described will be made available to be retrofitted to existing binders by the user.

In the preferred embodiment, the page lifters are made as a continuous plastic extrusion cut to length to fit between binder rings and with a pressure sensitive adhesive surface applied on the base of the attaching member allowing the user to peel off a protective strip and press the attaching member of the page lifting device in place against the ring cover. This embodiment

would be particularly attractive as a retrofit. An alternate embodiment is made from stiff paper with the rotatable attachment to the top of the attaching member being accomplished with a thin flexible section of the material or with bonded cloth.

Another embodiment is to have all parts formed from stiff wire with, as the attaching member, spring loaded clips to engage the edges of the ring-base cover. This embodiment could be easily transferred from one binder to another of equal ring-base-cover width.

Other conventional mechanical means of installing the attaching member to the binder ring base cover include one or more screws, welds, rivets, pins or clamps. The attaching member can also be mounted by flexible means such as pressure sensitive adhesive on foam with the adhering surface protected by a peelable material.

In the embodiment where the leaves are made from loops of stiff wire, the loops could be affixed around or between each of one or more of the binder rings, or affixed such that one loop encloses more than one ring.

The page lifters should substantially conform to the configuration of the open binder. That part of the page lifter that lies against the binder cover when the binder is open will also lie against the binder cover when the binder is closed. This configuration results in minimum distortion of the pages in the open binder and maximum retained capacity of the binder.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Figures 1, 2, 3, 4 and 5 all show a ring binder with a page lifter installed. Figures 1, 2, 3 and 4 show the binder with the left cover in the closed position and the right cover in the fully open position. Figure 5 is an end view with both covers part way between open and closed.

Figure 1 shows a top view of the preferred embodiment in which the leaves and attachment member are joined by flexible material, such as tape, or a thin section in the material used for either leaves or attachment member, and the attachment member is attached to the ring-base cover with pressure sensitive adhesive on the surface that interfaces with the ring-base cover. The pressure sensitive adhesive surface would be protected by a peelable material that would be peeled off before pressing the attachment member in place on the ring-base cover.

Figure 2 is an end view of the binder and page lifter shown in Figure 1.

Figure 3 shows an embodiment of the page lifter constructed from stiff wire.

Figure 4 is an end view of the binder and page lifter shown in Figure 3.

Figure 5 is an end view of the preferred embodiment showing the binder covers part way between open and closed.

## DETAILED DESCRIPTION OF THE INVENTION

Figure 1 is a top view showing the preferred embodiment of the page lifter installed in a binder 6 with the left cover of the binder in the closed position and the right cover of the binder shown flat in the open position. The preferred embodiment of the page lifter, shown in Figures 1, 2, and 5, consists of leaves 1, a thin section 2 functioning as a flexure hinge, an attaching member 3 and adhesive 5 to adhere member 3 to the ring-base cover 4 of a binder. The flexing hinge 2 provides a center of rotation for the leaves 1 that is at the approximate center of the binder rings 7. This embodiment could be formed as a single plastic extrusion cut to length to fit between binder rings. The leaves can contain holes 8 or slots to provide clearance to accommodate one or more binder rings.

Figure 2 is an end view of Figure 1.

Figure 3 is a top view showing an embodiment of the page lifting device made from stiff wire. A pivot pin 11 is supported by two mounting clips 10 that support the pivot pin and position it at the center of the binder rings 7. The pivot pin has bent ends 12 to keep it in place axially. The page lifters 9 are attached to and pivot about the pivot pin 11.

Figure 4 is an end view of Figure 3.

Figure 5 is an end view of the preferred embodiment showing the binder covers part way between open and closed. This shows how the page lifters 1 rotate about their pivot axis, which is near the center of the binder rings, to lift the pages around the binder rings 7 without pushing the pages against the binder rings which could cause the pages to jam or be damaged.

Although the invention is described with respect to preferred embodiments, modifications thereto will be apparent to those skilled in the art. Therefore, the scope of the invention is to be determined by reference to the claims which follow.

What is claimed is:

1. A page lifting device, for use with a loose-leaf binder having front and back covers, binding rings and a binding-ring base cover, which comprises
  - a) at least one pair of page lifters hinge mounted to an attaching member,
  - b) one said page lifter located in front of all of the pages in the binder and the other page lifter located behind them,
  - c) said attaching member fixedly attached to the ring-base cover,
  - d) the height and location of said attaching member being such that the hinge is located at approximately the center of the substantially circular binder rings,whereby on closing the loose-leaf binder the outermost edges of the page lifters encounter the inside surfaces of the loose-leaf binder's front and back covers, forcing said page lifters to rotate about said hinge thereby lifting said pages on the binder rings away from the ring-base cover toward the uppermost part of said binder rings preventing the pages from being caught between the binder rings and the inside surfaces of the loose-leaf binder's front and back covers.